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Mental profile comparison of male and female adolescents during puberty

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Abstract

The purpose of this study was to compare the mental profile of male and female adolescents during puberty. Two hundred male (14-16 years old) and female (13-15 years old) adolescents were chosen by random cluster sampling. They were examined by MMPI (minimal form) inventory and the obtained data were analysed by T-test, x^2 and descriptive statistic. The obtained results showed that the difference mean scores in scales F, Hy, Pa and Pt of inventory differed significantly ($p<0.01$) between male and female adolescents and the frequencies of two-point codes were significantly different between two groups ($p<0.05$).

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Keywords: Mental profile, Puberty, Adolescents, Two-point code;

1. Introduction

Adolescence is a developmental period marked by a sharp increase in depression, as well as the time when the well-established sex difference in depression emerges (Hankin & Abramson, 2001). Adolescence also is characterized by multiple challenges, disruptions, and developments in biological, psychological, and social domains (Cicchetti & Rogosch, 2002). Adolescents also experience a shift in social contexts to a greater emphasis on the peer domain (Savin-Williams & Berndt, 1990) while also experiencing more stress and disruption in peer relationships (Brown, 1990).

Pubertal development is a multifaceted process, involving physical and biological changes, as well as psychological and social experiences and implications (Graber, 2003). The onset of puberty is defined by first menstruation in girls, and first ejaculation/nocturnal emission in boys (Kaltialai-Heino et al., 2003). Anatomically, these changes induce secondary sexual characteristics and behaviourally they alter peer interaction and risk taking behaviour (Laviola et al., 2002). Within the brain, puberty is associated with changes in neurotransmitter release and concentration (Choi et al., 1997) and gross changes in volume and white matter organization that continue well into the late teens (Gogtay et al., 2004).

Pubertal timing refers to the timing of pubertal onset relative to peers (i.e., early, on-time, or late). In general, girls and boys who are “on time” experience developments in secondary sexual characteristics around age 12 and 13 years, respectively (Reardon et al., 2009). Adolescents who develop early puberty might be underprepared for such changes. They also might feel deviant and insecure about their difference and lack the social support of peers going

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through the same process (Ruble & Brooks-Gunn, 1982). Adolescents who develop late puberty relative to their peers might similarly feel insecure about their physical differences, and they might feel left behind, both physically and socially, as their more developed peers' transition into adolescence. Thus, adolescents who develop off-time in either direction might be at risk for psychosocial distress (Weichold et al., 2003).

Compared to their on-time or late-maturing peers, early-maturing girls typically exhibit more depressive symptoms and mood (Benjet & Hernandez-Guzman, 2002; Ge et al., 2001), internalizing symptoms (Caspi & Moffitt, 1991), and general psychological distress (Ge et al., 1996). There is some evidence that late maturation in girls also has negative psychological effects, suggesting a curvilinear pattern (Dorn et al., 2003).

Among boys, late maturation often is associated with elevated depressive symptoms compared to early and on-time maturation (Dorn et al., 2003; Benjet & Hernandez-Guzman, 2002; Weichold et al., 2003). Yet, some research have demonstrated that early-maturing boys also exhibit elevated depression (Alsaker, 1992), suggesting a curvilinear relation between pubertal timing and depression for boys as well (Weichold et al., 2003).

With the extant research in mind, the main objective of this study was to compare mental profile of male and female adolescents during the early age of puberty. In this regard, two hypotheses have been proposed as follow:

1) The mental profile of male and female adolescents is different during puberty.
2) The frequencies of two-point codes (of MMPI) differ between male and female adolescents during puberty.

2. Research Method

The research statistical sample includes one hundred, 13-15 years old female and one hundred 14-16 years old male adolescents of Isfahan city, Jey educational region who were selected through random cluster sampling. The mean age of females was nearly 14 and for males about 15 years. The research instrument was as follow:

Minnesota Multiphasic Personality Inventory (MMPI) minimal form: This inventory originally has been developed by Hathaway and McKinley (1940) and the minimal form has been developed by Kin canon (1968) (Duckworth & Anderson, 1995). This is a 71-item inventory that should be answered "True" or "False." The minimal form of MMPI has 11 standard scales, of which 3 are related to validity and 8 to clinical or personality indices. Validity scales are: L, F, and K. Clinical scales are Hs, D, Hy, Pd, Pa, Pt, Sc, and Ma that are marked by 1,2,3,4,6,7,8,9 codes, respectively in MMPI interpretation of two-point codes. All MMPI scales are quite reliable, with values that range from a low of 0.71 (Scale *Ma*) to a high of 0.84 (Scale *Pt*) (Hunsley et al., 1988).

Descriptive statistics with computations of means and standard deviations were used for all scales. Comparisons between two groups were made by independent –sample t test and x^2.

The process of completing the inventory was done individually. At first, students were informed about the nature of the research and then they were asked to complete the inventory.

3. Results

After data analysis, the following results about each research hypothesis were obtained:

1) The mental profile of male and female adolescents is different during puberty.

The results indicated that the mean scores of females in validity scales is higher than males but this difference is significant, just about scale F ($t= -5/58$, $p<0.01$). In clinical scales, the mean scores of females is higher in scales Hs, D, Hy, Pd, and Ma but these differences are significant, just about scales Hy and Pa ($t= -4/29$ & $-3/90$ respectively, $p<0.01$). In addition, the results indicated that the mean scores of scale Pt is significantly higher among male adolescents ($t= 3/27$, $p<0.01$). (Table 1)

2) The frequencies of two-point codes (of MMPI) differ between male and female adolescents during puberty.

The results showed that frequencies of two-point codes (of MMPI) between male adolescents are more than females ($x^2= 27/18$, $p<0/05$). In addition, the descriptive statistical analysis of adolescents' mental profile showed that 32% of males and 21% of females received at least one, two-point code of MMPI ($T\geq70$). 14% of males and 18% of females, in just 1 scale had more than 70 scores. The most two point codes in males were 18/81(9%), 78/87(7%) and 48/84(6%) and in females were 48/84(4%), 68/86 (3%) and 46/64 (3%). (Table 2)

Table 1. Results of *t* test for comparison mental profile of two groups

Scales	Females		Males		*t*	Sig
	Mean	SD	Mean	SD		
L	49.33	10.58	48.58	9.92	-.51	0.60
F	60.38	10.90	52.03	10.22	-5.58	0.00
K	52.65	10.49	50.52	11/11	-1.39	0.16
Hs	55.65	11.13	53.05	16.37	-1.31	0.19
D	54.76	9.52	52.21	11.47	-1.70	0.08
Hy	56.13	10.52	50.04	9.48	-4.29	0.00
Pd	58.18	9.36	57.62	11.74	-0.36	0.71
Pa	57.11	9.50	51.59	10.44	-3.90	0.00
Pt	53.65	8.61	58.61	12.47	3.27	0.00
Sc	59.10	10.02	59.41	14.67	0.17	0.86
Ma	53.97	10.03	51.90	9.61	-1.48	0.13

Table 2. Frequencies of two-point codes between two groups

Codes	Males	Females	Total
12/21	1	0	1
17/71	2	0	2
18/81	9	1	10
23/32	0	2	2
24/42	0	1	1
26/62	1	0	1
27/72	2	0	2
28/82	0	1	1
34/43	0	1	1
36/63	0	1	1
46/64	1	3	4
47/74	1	0	1
48/84	6	4	10
49/94	0	1	1
67/76	0	1	1
68/86	1	3	4
78/87	7	1	8
89/98	1	1	2
Total	32	21	53

4. Discussion

Since to the best of our knowledge, there was no similar study in the literature in some parts, there was no possibility of comparison with other studies and we just explained the results of the present study.

As results indicated, mean scores of scales Hy and Pa are significantly ($p<0.01$) higher among female adolescents. Item of Hy scale is originally selected to identify individuals who utilize hysterical reaction to stressful situations. The important feature of persons who score high on scale Hy is that they simultaneously report specific physical complaints but also use a style of denial in which they may even express an exaggerated degree of optimism. Females having high score in this scale are still likely to have somatic complaints in response to stress (Duckworth & Anderson, 1995). Although, Hathaway and Monachesi (1963) found that scale Hy high points tended to occur with a greater frequency among Minnesota normal adolescents (Archer, 1997). As mentioned before the changes of puberty in female adolescent are more stressful than males.

Elevations on scale Pa (figure1; female adolescents' profile) are consistent with academic problems including poor grades and suspension. Clinical girls with high score of this scale, report significant disagreements with their

parents (Groth-Marnat, 2003). Our findings are consistent with the results of Larson and Ham (1993) study that indicates adolescents (especially female adolescents) are more sensitive and moodier than children.

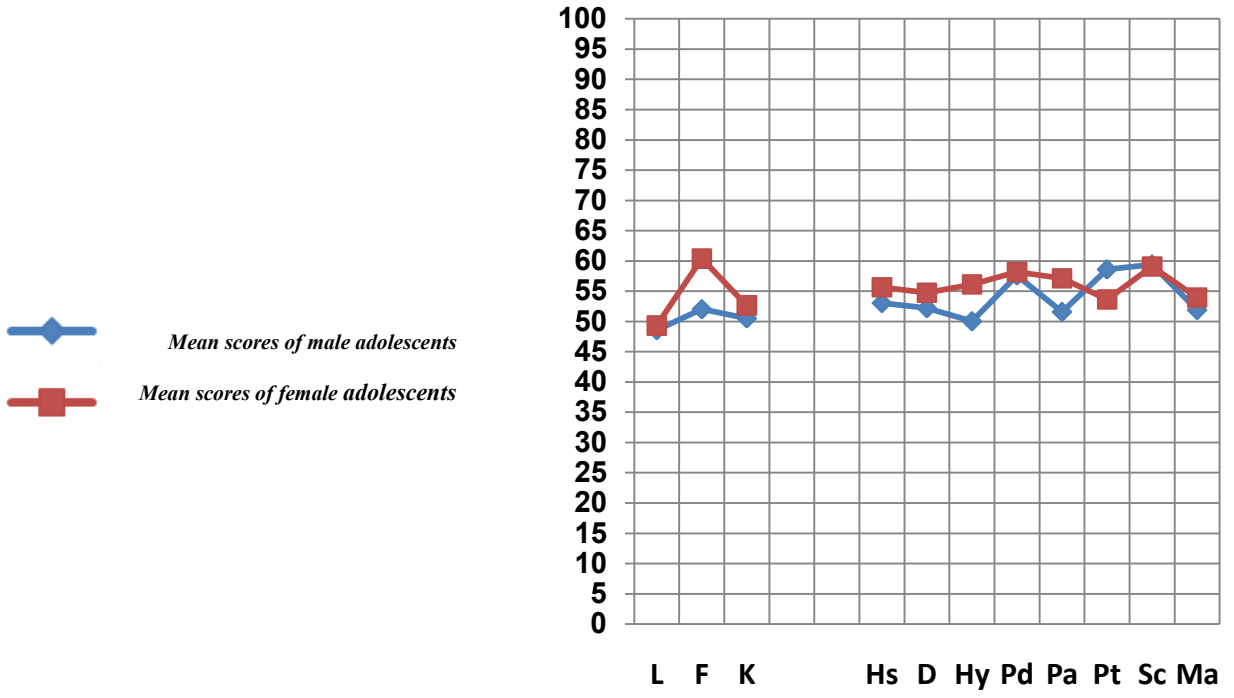

Figure 1. Mental profile comparison of two groups

The mean scores of male adolescent in scale Pt are significantly ($P<0.01$) higher than females. Elevations on scale Pt suggest adolescents who are apprehensive, worrying, perfectionistic, and tense, and who may have a wide variety of superstitious fears and they likely have low self-confidence (Duckworth & Anderson, 1995). It seems that in comparison with female adolescents, male adolescents received less attention from their parents during puberty and it causes them feeling anxious and having low self-confidence.

The comparison of two groups' mental profile in validity scales showed that the profile of male adolescents is normal but females have a faking-bad profile. Adolescents with this profile over reported symptoms resulting in highly elevated scale F scores, low scale K scores and peaks on *Pa* and Sc scale (Figure 1) (Stein et al., 1995). It seems that the changes of puberty in female adolescents, results in more stress and they need more help to adjust themselves with these rapid changes. Research findings also approve the results of the present study about validity scales. For example, studies of Mexican youth suggested that girls become somewhat more depressed as they go through puberty. Whereas boys experience an improve sense of body image and well-being (Benjet & Hernandez-Guzman, 2002).

According to figure1, female adolescents' two-point code is 48/84. Adolescents with the 48/84 code have deep needs for attention and affection; they frequently set themselves up for rejection and failure. They have deep feelings of insecurity and a poor self-concept, they are rejected and, as a result, feel alienated and hostile, sometimes attempting to compensate with counter rejection and other forms of retaliation (Groth-Marnat, 2003). As was discussed before, it is natural in puberty period (especially in early age of puberty) for both male and female adolescents because they are experiencing a stressful situation.

The second frequent two-point code in female adolescents is 46/64 and 68/86. Adolescents with the 46/64 code type are hostile, distrustful, irritable, immature, self-centred, and usually unable to form close relationships. They have significant levels of social maladjustment often related to continually blaming others for their personal faults. This style of blaming prevents them from developing insight into their own feelings and behaviours, because they are constantly focusing on the behaviour of others rather than their own (Duckworth & Anderson, 1995). The key features of people with the 68/86 code type are suspiciousness and distrustfulness, and they often perceive the

intentions of others as suspect and questionable. They will be extremely distant from others, with few or no friends. They can be described as inhibited, shy, resentful, anxious, and unable to accept or appropriately respond to the demands that are made of them. These results indicate that in some adolescents, the puberty make more pressure and stress than usual. It is associated with many factors such as; culture, family situation, relationship with peers etc (Sigelman & Rider, 2008).

According to figure1, two-point code of male adolescents is 78/87. This profile usually represents a reaction to a specific crisis. They may have been previously functioning at an adequate level until some event or series of events triggered a collapse in their defences and they are lacking in self-confidence (Groth-Marnat., 2003). As discussed before, it is natural in puberty period (especially in early age of puberty) for male adolescents because they do not receive enough attention during this period.

Finally, the most frequent two-point code among male adolescents is 18/81. Adolescents with this code may experience confusion and difficulty in concentrating. Their ability to deal effectively with stress and anxiety is extremely limited. They will experience interpersonal relationships with a considerable degree of distance and alienation. Often, they will feel hostile and aggressive but will keep these feelings inside (Groth-Marnat., 2003). As described by developmental psychologist, some degrees of these behaviours, feelings, thoughts, and reactions are usual in puberty ages (Berk, 2007; Damon & Lerner, 2008).

According to the results of the present study, puberty period is one of the most important and critical stages of life both for male and female adolescents and it seems that female adolescents experience more stress during puberty because of some religious and cultural reasons. Thus, parents and teachers must have a special look on adolescents in this stage and should help them adjust themselves with the rapid and sudden changes of this period.

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